

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An oxygen-delivery matrix, comprising, a biocompatible, single unit construct cross-linked polyacrylamide matrix, wherein the ~~cross-linked~~ polyacrylamide matrix is ~~formed cross-linked~~ prior to formation of closed cells of oxygen gas production, comprising a swellable cross-linked polyacrylamide polymer network, a catalyst dispersed in the matrix, and oxygen in closed cells in the cross-linked matrix substantially where the catalyst is present, wherein during manufacture of the matrix, the oxygen is formed in closed cells in the matrix by a the catalyst generating oxygen when contacted by a second reactant. ~~to create multiple oxygen-rich closed cells within the cross-linked matrix; and wherein the oxygen in closed cells is dispersed throughout the polymer network~~
2. (Original) The matrix of Claim 1, further comprising at least one active agent.
3. (Canceled)
4. (Currently Amended) The matrix of Claim 1 ~~3~~, wherein the oxygen delivery matrix further comprises a non-gellable polysaccharide.
5. (Canceled)
6. (Previously Presented) The matrix of Claim 1, wherein the oxygen is formed from the decomposition of a peroxide.
7. (Canceled)
8. (Previously Presented) The matrix of Claim 1, wherein the catalyst is a carbonate salt, a salt of iodide, manganese dioxide, cupric chloride, or an enzyme.

9-20. (Canceled)

21. (Previously Presented) The matrix of Claim 2, wherein the at least one active agent comprises gases, anti-microbial agents, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, mycoplasma treatments, growth factors, proteins, nucleic acids, angiogenic factors, anesthetics, mucopolysaccharides, metals, pharmaceuticals, chemotherapeutic agents, herbicides, growth inhibitors, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, wound healing agents, growth promoters, indicators of change in the environment, enzymes, nutrients, vitamins, minerals, carbohydrates, fats, fatty acids, nucleosides, nucleotides, amino acids, sera, antibodies and fragments thereof, lectins, immune stimulants, immune suppressors, coagulation factors, neurochemicals, cellular receptors, antigens, adjuvants, or radioactive materials.

22. (Previously Presented) The matrix of Claim 21, wherein the gases comprise nitrogen, carbon dioxide, and noble gases.

23. (Previously Presented) The matrix of Claim 21, wherein the anti-microbial agents comprises isoniazid, ethambutol, pyrazinamide, streptomycin, clofazimine, rifabutin, fluoroquinolones, ofloxacin, sparfloxacin, rifampin, azithromycin, clarithromycin, dapsone, tetracycline, erythromycin, ciprofloxacin, doxycycline, ampicillin, amphotericin B, ketoconazole, fluconazole, pyrimethamine, sulfadiazine, clindamycin, lincomycin, pentamidine, atovaquone, paromomycin, diclazaril, acyclovir, trifluorouridine, foscarnet, penicillin, gentamicin, ganciclovir, iatroconazole, miconazole, Zn-pyrithione, silver salts, chloride, bromide, iodide, or periodate.

24. (Previously Presented) The matrix of Claim 21, wherein the growth factors comprise basic fibroblast growth factor, acidic fibroblast growth factor, nerve growth factor, epidermal growth factor, insulin-like growth factors 1 and 2, platelet derived

growth factor, tumor angiogenesis factor, vascular endothelial growth factor, corticotropin releasing factor, transforming growth factors α and β , interleukin-8, granulocyte-macrophage colony stimulating factor, interleukins, or interferons.

25. (Previously Presented) The matrix of Claim 21, wherein the mucopolysaccharides comprise heparin, heparin sulfate, heparinoids, dermatitin sulfate, pentosan polysulfate, chondroitin sulfate, hyaluronic acid, cellulose, agarose, chitin, dextran, carrageenan, linoleic acid, or allantoin.

26. (Previously Presented) The matrix of Claim 21, wherein the proteins comprise collagen, cross-linked collagen, fibronectin, laminin, elastin, or cross-linked elastin.

27. (Previously Presented) The matrix of Claim 21, wherein the metals comprise zinc or silver.

28. (Previously Presented) The matrix of Claim 1, wherein the matrix comprises a stranded configuration.

29-30. Canceled

31. (Previously Presented) The matrix of Claim 1, further comprising a water loss control agent comprising petrolatum, glycolipids, ceramides, free fatty acids, cholesterol, triglycerides, sterylesters, cholesteryl sulfate, linoleic ethyl ester, or silicone oil.

32. (Previously Presented) The matrix of Claim 1, further comprising a plasticizer comprising glycerol, water, propylene glycol, or butanol.

33. (Previously Presented) The matrix of Claim 1, further comprising a hydration control agent comprising isopropyl alcohol, ethanol, glycerol, butanol, or propylene glycol.

34. (Previously Presented) The matrix of Claim 4, wherein the non-gellable polysaccharide is guar gum.

35. (Previously Presented) The matrix of Claim 8, wherein the enzyme is catalase.

36. Canceled

37. Canceled

38. (Currently Amended) A gas delivery device, comprising a biocompatible, single unit construct cross-linked polyacrylamide matrix, wherein the cross-linked matrix is formed prior to gas formation, comprising a swellable cross-linked polyacrylamide polymer network, at least one active agent, and a gas in closed cells formed in the matrix, wherein the gas is oxygen, and the oxygen is formed by the reaction of a catalyst and a second reactant in the matrix during the manufacture of the matrix to create multiple oxygen-rich closed cells within the cross-linked matrix; ~~and wherein the oxygen in closed cells is dispersed throughout the polymer network.~~

39. (Currently Amended) A gas delivery device, comprising a biocompatible, single unit construct cross-linked polyacrylamide matrix, wherein the cross-linked polyacrylamide matrix is formed prior to gas formation, comprising a swellable cross-linked polyacrylamide polymer network, at least one active agent, and oxygen in closed cells formed in the cross-linked matrix.